

The body thermostat can adjust the temperature of the internal organs to these conditions. There is not such discomfort and danger as comes from overcrowded, unventilated movie theaters or school-rooms. But there are somewhat important disadvantages.

In the first place, in order to keep up the body temperature in dry air, much blood is withdrawn from the skin. Moreover evaporation is active. The skin is cooled, and we "feel chilly." Hence the tendency is to have hotter rooms, up to 75° to 80°, and even 85° F. The skin gets cracked and rough, which is not pleasant to say the least. The same tendency to rapid drying extends to the mucous surfaces of the nasal passages, the pharynx and trachea, with consequent respiratory disturbances. Nose and throat specialists, generally, attribute the frequency of infections in winter more to the dryness than to the cold. This amounts to saying that in order to protect its indispensable internal temperature, the body has to abandon more or less the outlying provinces such as the skin and mucous surfaces. They have not enough blood and get dry; they pick up germs and become inflamed. * * *

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THE UNSEASONABLE WEATHER OF MAY, 1924

By ALFRED J. HENRY

It was the privilege of the writer to contribute to this REVIEW some account of the cold spring of 1907.¹

The present spring resembles in several, though not all respects, that of 1907, and since it affords an opportunity to attempt to correlate the weather in the United States with that of other portions of the Northern Hemisphere some space will be given to that end.

May is a month when normally in the Northern Hemisphere temperature should rise; it is well known, however, that the temperature in that month in some years, but not in all, suffers interruptions of greater or less duration and intensity, thus the temperature instead of rising sinks materially and sometimes continues at a low point for a week or 10 days. When these interruptions are more or less continuous over a considerable time the result is a cold and backward month such as occurred in north-central and northeastern United States in May, 1882, in practically the whole country in 1907 and 1917, and in a less degree in the month here under discussion. This phenomenon has been recognized for more than 100 years and in the meantime a very considerable literature thereon has been developed.²

In the last 40 odd years May was exceptionally cool east of the Rocky Mountains in 1882, 1883, 1888, 1890, 1907, 1917, and 1924.

Cool weather in May is due to several causes operating singly or in conjunction. The first and chief cause apparently has its origin in the polar regions and is manifest in temperate latitudes of both hemispheres by an unusual flow of cold polar air toward the equator; as a direct result of such flow masses of cold and warm air, respectively, are brought into contact, vertical and horizontal convection produces condensation and much cloud and rain. Insolation is, therefore, hindered and thus contributes to a lowering of the temperature, or shall we say prevents the normal increase in temperature due to the incoming solar energy. May, 1924, in northeastern United States was exceptionally cloudy and rainy. While the rainfall here in Washington was not exceptionally heavy, it was nearly continuous after the

12th. From that date until the close of the month the greatest interval of fair weather did not exceed two days.

THE WEATHER OF PREVIOUS COOL MAYS

May, 1882.—In the United States this month was characterized by low temperature, the lowest in 40 years or more in northeastern districts; heavy rains in the Ohio Valley; much ice in the region of Newfoundland, also on the coast of Nova Scotia, the harbor at Halifax being ice-bound in the last decade of the month. Outside of the United States the only observational data available are those contained in the Signal Service International Bulletin. That publication contains monthly means of pressure, temperature, and wind direction for one station each in the Faroes, Iceland, and Greenland. From these data it is established that pressure in the Arctic was above normal with polar winds (from the pole); the Icelandic minimum was centered to the southwest of that island, approximately in north latitude 55°, West longitude 20°. The Azores maximum was likewise to the southwest of its usual position. In the British Isles both pressure and temperature were above normal, the former by 0.04 inch and the latter by 3. Temperature was less than normal in the Azores and quite generally throughout Iceland, Norway, Spain, Italy, and Portugal and points in the Black Sea region.

The paths of anticyclones in the United States show clearly the movement of masses of cold air over the Canadian Maritime provinces and fully explain the pressure abnormality of plus 0.30 inch at St. Johns, N. F. The origin of these disturbances was apparently north of the Great Lakes, especially in the region of Hudson Bay.

May, 1907.—The observational data for this month, although greater than for 1882, are lacking almost entirely for northern Canada and Alaska.

The writer in discussing the cold spring of that year³ attributes the unseasonable weather to the pressure distribution over the North American Continent in consequence of which the intrusion of masses of cold air by way of the upper Missouri Valley were greatly facilitated.

In Northwestern Europe after the middle of the month there was a greater or less influx of cold polar air, as witness the following excerpt from Weekly Weather Report, London 1907, p. 164.

"High pressure in Iceland and off the west coast of Europe and low pressure over central Scandinavia established a gradient for northerly winds over the British Isles and indeed from the Arctic to the Mediterranean. Low temperature for the season prevailed generally over Europe practically to the close of the month."

No information relative to the ice about Newfoundland is available but the pressure at St. Johns N. F. was 0.14 inch below the normal, directly the opposite of that for May, 1882, when, as before stated there was much ice at that place.

May, 1917.—An account of the cold weather of this month will be found in this REVIEW for June 1917.⁴ The exceptional character of the weather of that month was the low temperatures that prevailed in *all parts of the country*, the absence of extremely low minima, the lack of sunshine and consequently the failure of the day temperatures to reach the usual high values.

¹ Henry, A. J. The cold spring of 1907, *Mo. WEATHER REV.* 35: 223-25.

² Cf. this REVIEW 47: 555-65.

³ Loc. cit.

⁴ Day P. C. The cold spring of 1917; 45: 285-89.

May, 1924.—For this month definite information is not yet at hand respecting the pressure distribution at points outside of the United States and Canada but thanks to a timely articles in the *Meteorological Magazine* by Mr. C. E. P. Brooks⁵ general information respecting the pressure and temperature distribution for the early part of the year is available.

We summarize from the article as follows:

The winter of 1923-24 in the British Isles was characterized, particularly in November and December, 1923, and February and March, 1924, by an abnormal frequency of northerly and easterly winds.

Charts of monthly pressure deviation which are now regularly drawn for western Europe, the North Atlantic, and North America show that pressure as far back as October, 1923, was much below the normal north of Scotland—15 mb., the deficit increasing to 18 mb. over the Faroes. In North America an excess of 5 mb. was noted in the Missouri Valley. In November, 1923, the pressure deficit, now but 10 mb., was found over the Baltic.

Pressure over the North Atlantic was above normal, the excess being 5.6 mb. at Horta and 11.5 mb. at 50° N. 30° W., over the British Isles the lines of equal pressure departure were directed from north to south and northerly winds were abnormally frequent. In December the conditions were somewhat similar but the area of pressure deficit had shifted northward and the pressure-excess was now centered between Azores and Corunna. Pressure distribution over the North American Continent in December was without special significance. After two consecutive months of above-normal pressure, a reaction to lower pressure took place east of the Rocky Mountains.

During January, 1924, pressure was 5 mb. below normal over the ocean between Iceland and Scotland; in North America pressure was generally in excess of normal, the greatest excess being 6.8 mb. over the Great Basin. During February pressure over the North Atlantic west and northwest of the British Isles was above normal by about 10 mb. In North America pressure was again in excess except along the Atlantic coast north of Florida.

During March, 1924, pressure was below normal over the North Atlantic southwest of the British Isles, the greatest deficit being 15.5 mb. at Horta; it was 6.7 mb. above normal at Stykkisholm, Iceland, and since the average pressure difference between these two stations in March is but 12.5 mb., it follows that the normal pressure was completely reversed; hence, cold easterly winds prevailed over the British Isles.

Pressure for this month over North America, especially the Canadian Maritime provinces was exceptionally low, a deficit of 12.5 mb. being noted on the Nova Scotia coast. It may well be that pressure over the entire north Atlantic between certain latitudinal limits was well below normal. This is the most significant fact as regards the weather that has thus far been developed.

This great depression of the barometer over the Atlantic Ocean during March was associated with the eastward movement from the United States of a rather large number of cyclonic systems most of which passed to sea south of North latitude 40°. The movement thus initiated seems to have continued during April, although in a somewhat diminished degree. It seems clear that pressure over the middle-western north Atlantic, as indicated by the two stations, Horta and Bermuda was nearly normal during April and May; there was, however,

an unbroken period of low pressure and cyclonic activity at St. Johns from May 14 to June 11, 1924.

In May, 1924, the movement of cyclonic systems across the United States was grouped along two paths—first across the Canadian Maritime Provinces from the region of the Great Lakes, and second from the Virginia capes northeastward toward the Grand Banks (see Chart II). Anticyclones, on the other hand, avoided the region east of the Mississippi as may be seen from Chart I.

In this connection mention should be made of a news item that appeared in the public prints, some days ago, to the effect that sea-water temperatures in the vicinity of the Grand Banks were about 7° F. higher than usual for the season.

The authority for the statement is Lieut. E. H. Smith, of the United States Coast Guard, in charge of meteorological work on the International Ice Patrol. It would be premature to discuss this fact in the absence of exact information as to what the observations on the Ice Patrol disclose.

The conclusion that this discussion seems to point to is that May temperatures in the United States, at least, are conditioned upon the vigor of the circulation of air between the equator and the poles. When the balance in the exchange is on the equatorial side temperature rises perhaps a little faster than when the exchange is normal, and when, on the other hand, the balance in the exchange is on the polar side, as in the cool Mays discussed, the normal seasonal rise in temperature is retarded both by direct importation of cold air and the formation of great cloud blankets induced thereby, which intercept solar radiation and produce a lowering of the temperature.

It is also evident that the phenomenon of cold Mays is a complex problem. The cold May of 1882 was a month rich in ice about Nova Scotia; the current month was exactly the opposite. Pressure over the Canadian Maritime Provinces in 1882 was high; in May, 1907, 1917, and 1924 it was low.

In the last-named year the low pressure in the western Atlantic was preceded by exceptionally low pressure in various parts of the eastern Atlantic for the six months preceding, the locus of the low pressure shifting about as hereinbefore indicated.

DESTRUCTION OF AN AERIAL DURING A THUNDER-STORM

551.594

By IRVING F. HAND

[Weather Bureau, Washington, June 30, 1924]

Since radio has become so popular it is thought that a short account of the destruction by an electric discharge of the aerial used by the Solar Radiation Investigations section of the Weather Bureau at the American University, during a severe thunderstorm on June 18, will be of interest.

The aerial was about 25 feet above ground at both ends, 70 feet long, insulated at one end by a porcelain cleat from the guy wire, which was attached to a tree about 15 feet distant. The other end of the aerial was fastened to a switch on a window sill of the observatory. This switch was open during the storm so that the aerial was an ungrounded unit. Both the aerial wire and the guy wire passed through a three-eighths-inch hole in the porcelain cleat, as it was thought that aside from serving as an insulator, the gap of about $\frac{1}{8}$ inch between the wires in the cleat would act as a lightning arrestor as soon as the tree became sufficiently wet to make a good ground.

⁵ C. E. P. Brooks, The abnormal weather of the winter and early spring, 1923-4; *Meteorological Magazine*, May, 1924.